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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
08/833,620	04/07/1997	MICHAEL S. DOBBINS	15275/8610(D)	2784

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EXAMINER

HOFFMANN, JOHN M

ART UNIT	PAPER NUMBER
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1731

43

DATE MAILED: 06/20/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

08/833,620

Applicant(s)

DOBBINS ET AL.

Examiner

John Hoffmann

Art Unit

1731

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 12, 13, 22, 33-39, 41-49 and 51-53 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 45 and 48 is/are allowed.
- 6) ☒ Claim(s) 12, 13, 22, 33-39, 41-44, 46-47, 49 and 51-53 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____ 6) ☐ Other: ____

DETAILED ACTION

Allowable Subject Matter

Claims 45-48 are allowed.

Claim Rejections - 35 USC § 103

Claims 12, 13, 22, 33-38, 41-44, 46-47 and 53 as well as claims 39-42 and 50-52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miller 4501602 in view of Schwarz EP0038900 and optionally in view of Hyde 2272342 and/or JP 138145 ('145)

Miller teaches the invention substantially at col. 1, lines 10-31. This is a method of making soot along with further processing to make a complete glass body (See Claim 1 and figure 4 of Miller) Col. 12, line 3-8 essentially discloses that Miller's invention is an improvement of that col. 1 process. Miller also teaches that it is known that other silicon compounds can be used (col.1, lines 32-41), however, silicon tetrachloride is clearly favored by Miller.

Schwarz teaches to substitute siloxanes for the tetrachloride in the production of silica soot because: (1) such is free of chlorine and (2) absence of the need to get rid of acid (Page 3, lines 3-9). It would have been obvious to alter the steps that Miller uses to make soot by using one of the Schwarz cyclosiloxanes for the advantages of

Schwarz. It is noted that Schwarz's second advantage is essentially the same as Applicant's advantage (page 3, 1st paragraph).

Hyde is cited because it discloses that for over 60 years it has been known that one can use any hydrolyzable compound in making silica soot (page 2, lines 34-37).

'145 is cited as documenting a reasonable expectation of success for making a high quality optical silica glass using a cyclosiloxane (see entire document and most particularly - page 6, lines 7-26). Although no cyclosiloxane is explicitly mentioned, one looking at '145 would at once envisage the cyclosiloxanes. Specifically the Six Ry Oz compound. Small values of x would be envisioned (i.e. 2,3,4). R = methyl would be envisioned because it is disclosed in the hexamethyldisiloxane and it is a very simple alkyl. One would envision Y to be a value less than $2x + 2$ (otherwise the phrase "not higher than $2x + 2$ " would be replaced with "is $2x+2$ ". And if Y is less than $2x + 2$, the compound is a cyclosiloxane - because there is no other appropriate structure for a siloxane with fewer than $2x+2$ monovalent hydrocarbon groups as required by '145.

As to claims 33-38, see Schwarz, page 3, line 4.

All of the other claims are met as per discussed above: i.e. it would have been obvious to use air as the oxygen source because it is free. As to the specific siloxane of claims 51-53, if the Schwarz disclosure of only 3 (maybe 4) useable siloxanes isn't a sufficient teaching to use the specific compound, then it would have been obvious to perform routine experimentation to determine the best siloxane to use.

AS to claims 41-42, Page 6 of '145 teaches to use oxygen in the stream. It would have been obvious to use air as the oxygen since it is the cheapest form of oxygen. Air has nitrogen.

See also paper 39 the analysis (starting on page 2) of how the '145 reference suggests poly methylcyclo siloxanes.

Response to Arguments

Applicant's arguments filed 17 May 2002 have been fully considered but they are not persuasive.

It is argued that Schwarz does not provide that the silicic acid dispersion is suitable for buildup on a support. Hyde is cited as showing that it has been long known any hydrolysable silicon compound can be used to build up silica on a support. Schwarz need not discuss buildup. One cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Silicic acid is an alternate term for the created silica.

The rest of the arguments have been previously addressed. Namely, the carbon-creating experiments are not reasonable/valid experiments. They fail to take into account basic flame stoichiometry. One would realize that the ingredients need to be

adjusted to have complete combustion. One of ordinary skill realizes that one simply needs to cause all of the carbon to react with oxygen.

The alleged unexpected results would not be unexpected. The tests used identical volumetric flow rates. Assuming the ideal deal gas law, the trisiloxane would have 50% more silicon than the disiloxane and the pentasiloxane would have 150% more silicon atoms. One of ordinary skill would expect that the trisiloxane would create 50% more silica, and the pentasiloxane would create 150% more silica. Applicant's improved result has not been demonstrated to be unexpected.

As to the unexpected results of OMTCS shown on figure 4, example 4, it is noted that at low silica production rates, there is a difference in efficiency. However, it is noted that the highest possible efficiency is 100%, therefore, the dash-line extrapolation, will fail at some point. It is further noticed, that the highest efficiency of each precursor is nearly identical to the other. Most importantly, one of ordinary skill would not want to produce silica at the left end of the scale 1) because the total amount is low, 2) because the efficiency is low. The unexpected results must be commensurate with the degree of protection sought. If the claims were limited to the low production rates shown at the left -hand of figure 4, then such would be a showing of non-obviousness. However, since the present claims would encompass the high-efficiency, high-production (right-hand side) production rates (i.e. the rates that are most valuable) and since it has not been demonstrated that there is any improvement/unexpected result in the high-efficiency, high-production rates, the present evidence does not show non-obviousness.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

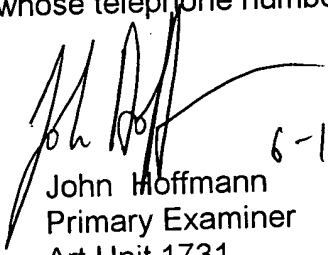
Any inquiry concerning this communication or earlier communications from the examiner should be directed to John Hoffmann whose telephone number is 703-308-0469. The examiner can normally be reached on Monday, Tuesday, Wednesday, Thursday, Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stan Silverman can be reached on 703-308-3837. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-7115 for regular communications and 703-305-3599 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0651.


John Hoffmann
Primary Examiner
Art Unit 1731

6-17-02

jmh
June 17, 2002